

Remarks

Claims 37-66 are presently pending. Reconsideration is respectfully requested.

Double Patenting

Claims 37-49 are rejected on the grounds of non-statutory obviousness-type double patenting as allegedly being unpatentable over claims 1-13 of U.S. Patent No. 7,834,263. Claims 50-59 are provisionally rejected on the grounds of non-statutory obviousness-type double patenting as allegedly being unpatentable over claims 37-46, 48-49 and 52-55 of copending Application No. 11/004,611 in view of Bass et al. (6,207,887).

A Terminal Disclaimer is filed herewith to address the Examiner's concerns. This was the only remaining rejection of claims 37-49¹, and thus Applicant respectfully requests notice of allowability of these claims.

Claim Rejections - 35 U.S.C. § 112

Claims 50-66 are rejected 35 U.S.C. § 112, first paragraph as failing to comply with the written description requirement. Applicant respectfully traverses this rejection.

The Examiner rejects the limitation in claim 50 of the thermoelectric power source that transfers heat spontaneously to and from the thermoelectric module "in the absence of an electrical and/or mechanical device external to the heat pipes." The Examiner believes the Specification lacks support for this recitation. Applicant disagrees.

Claims 50-66 The Examiner's rejection falls short of establishing that the Specification, as filed, would not have conveyed, to an ordinarily skilled artisan, that Applicants were in possession of the claimed thermoelectric power source. In the thermoelectric power source of claim 50, the thermoelectric power source does not include an electrical and/or mechanical power device, other than gravity, external to the low or high temperature heat pipes to transfer heat to and from the thermoelectric module.

In addition to the fact that the continually discussed "heat pipes" means a passive heat transfer device, i.e. no external electrical or mechanical device needed – the Specification is further replete with explanation to one of ordinary skill in the art indicating no power device external to the heat pipes is

¹ Note: Claim 37 has been amended to add the thin film material limitation Bi_xTe_y, Sb_xTe_y, or Bi_xSe_y wherein x and y form a non-stoichiometric compound wherein x is about 2 and y is about 3. Support for this limitation can be found throughout the specification, for example at p. 6, lines 13-14 and lines 25-27; p. 14, lines 1-3; p. 10, lines 6-10; p. 12, line 28 – p. 13, line 5; Fig. 11 and Examples 1 and 2; and the original claims as filed.

needed. (See Appendix A where the Specification Evidence is shown; see also, the Appendix B evidence of how heat pipes work, illustrating that when a true heat pipe is used, no external power source is needed.)

The Examiner cites MPEP § 2173.05(i) as authority that allegedly sanctions the Examiner's stated rejection under the first paragraph of 35 U.S.C. § 112. The Examiner's assertion is not correct under the law of § 112.

There is no *per se* rule that the addition of any negative limitation to a claim, which is not expressly set forth in an application disclosure as originally filed, automatically violates the written description requirement of the first paragraph of § 112. See, e.g., *Ex parte Sompalli*, Appeal 2009-013428, Technology Center 1700 (BPAI 2010); *Ex parte Parks*, 30 USPQ2d 1234, 1236-37 (BPAI 1994) (Appendix C). **The test for determining compliance with the written description requirement of § 112, first paragraph is not the presence or absence of literal support in the Specification for the claim language but instead whether the disclosure of the application reasonably conveys to a person of ordinary skill in the art that the inventor had possession at the time of the later claimed subject matter.** *Id. Ex parte Sompalli* at p. 4.

The Examiner does not point to any persuasive factual evidence that substantiates or otherwise satisfactorily explains why the described embodiments in the Specification that specify how the claimed power source using the heat pipes operate to spontaneously (passively) transfer heat, thus, clearly in the absence of an external electrical and/or mechanical power device, would instead have been reasonably understood by an ordinarily skilled artisan as describing embodiments wherein an external power device was or may be required.

- There is no mention of an external power device;
- Heat pipes by their nature are passive heat transfer devices;
- The Specification itself meticulously describes embodiments illustrating no external power device is used. (See Appendix A.)

There is no reason that one of ordinary skill in the art would have thought the inventors meant to include an external pump to move the working fluids in the heat pipes.

The only evidence the Examiner offers to support the rejection is a particular embodiment in Applicants' disclosure, which the Examiner misunderstands as having an external power device (a wick material). As explained above and in the Specification, the wick material is inside the heat pipe, not external to it. (Examiner cites p. 22, lines 20-29 (at p. 11 of the Office Action) which is p. 28, line 27 – p. 29, line 8 in the published application WO 2006/001827). Specifically, the "wick material" in this embodiment cited by the Examiner is inside the heat pipe – ". . . a wick structure on the inside of the pipe to draw the condensate back up to the evaporator region against gravity." Specification, p. 28, line 27 – p. 29, line 8. This is not a power device external to the heat pipe. Thus, the only aspect of Applicants' Specification cited as support for the Examiner's contention actually argues against the Examiner's position.

The Examiner has not carried the burden of proof as there is no factual basis to support a conclusion that the negative limitation in question introduces a new concept into the present Application disclosure. See *Ex parte Sompalli*, Appeal 2009-013428, Technology Center 1700 (BPAI 2010). The Examiner is respectfully requested to review this case (attached as Appendix C) as it is virtually identical facts to the present case, where an Examiner's rejection under § 112, para. 1 for lack of written description for a negative claim limitation, was reversed.

Applicant asserts that the present application adequately describes the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventors had possession of the claimed invention and Applicants respectfully request withdrawal of the rejection to claims 50-66 under § 112, first paragraph.

Claim Rejections 35 U.S.C. § 103

Claims 50-62 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Migowski (WO 89/07836) in view of Simeray et al. (6,340,787), Stachurski (4,125,122) and Bass et al. (6,207,887). Applicants traverse.

Applicant agrees with the Examiner that Migowski fails to teach or suggest use of heat pipes. However, the Examiner is in error asserting that Simeray's thermally conductive stake (74 in Figure 6) is a heat pipe. Likewise, there is no indication that the heat exchanger 73 is a heat pipe. Simeray makes no reference to use of a heat pipe, no reference to a working liquid with a phase change (implying a heat pipe) or any other disclosure indicating a heat pipe. A thermal stake or heat exchanger as shown in Simeray Fig. 6, using simple heat conduction is not equivalent to a heat pipe as the Examiner suggests. As explained in prior responses, a heat pipe requires a phase change of a working fluid. See Appendix B showing evidence that heat pipes operate using both thermal conductivity and phase change transition of a working fluid. Put another way, the Examiner is incorrectly equating the thermal conductors in Simeray to heat pipes. The Simeray thermal conductors are not equivalent to a heat pipe because, inter alia, they include no working fluid and hence there is not the phase change, i.e., from a liquid to a vapor or vapor to liquid in Simeray – as required to be a heat pipe. The Examiner admits that Simeray does not teach or suggest a working fluid, hence, does not teach or suggest heat pipes. Nothing in Simeray indicates that the thermal stake and heat exchanger disclosed are heat pipes. Accordingly, a *prima facie* case of obviousness is not set forth – Simeray does not make up for the deficiencies of Migowski.

To make up for the fact that Simeray does not teach or suggest a working fluid or a phase change transition – as required to be a heat pipe – the Examiner turns to Stachurski. But Stachurski does not make up for the deficiencies of Migowski and Simeray.

In fact, Stachurski requires a power source external to its fluid loops that actually transfer heat to the and from the TE module. See, e.g., Stachurski, Figs. 1 and 4, the pump noted as reference no. 31; and col. 4, lines 53-63. Thus, even if Migowski were to be modified as proposed by the Examiner, to include the Stachurski fluid loops, the modified device would still need a power source external to its fluid

loops to transfer heat spontaneously to the and from the TE module. (*Note, the actual heat pipes of Stachurski do not operate to transfer the heat to and from the TE module but instead operate to keep the hot junctions at a constant and even temperature – see Col. 1, line 60 – Col. 2, line 20.*) Thus, the proposed combination of references still does not meet the heat pipe requirements of the present claims.

Furthermore, it must be noted that modifying Migowski to include a pumped loop as taught by Stachurski would turn the relatively simple Migowski device into an over-engineered, needlessly complex device that likely will not meet any of the proposed uses of the Migowski device. The 2010 USPTO KSR Guidelines indicate that it is important to identify a reason for combining references especially when "a combination requires a greater expenditure of time, effort, or resources than the prior art teachings" even for combining known elements in a known manner to obtain predictable results.

Applicants believe that claims 50-66 are allowable over the art of record and notice to that effect is respectfully requested.

Claims 50-66 are also rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Albsmeier et al. (WO 02/095707) in view of Migowski (WO 89/07836), Simeray et al. (6,340,787), Stachurski (4,125,122) and Bass et al. (6,207,887). This rejection is respectfully traversed.

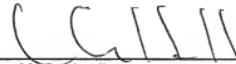
Besides the fact that the Examiner is citing, as a primary reference, the Albsmeier device which has nothing to do with thermoelectric devices per se but merely mentions its device might include a heat transducer. Accordingly, Albsmeier does not make up for the deficiencies of Migowski, Simeray and Stachurski since Albsmeier does not teach or suggest the claimed thermoelectric device having a heat pipe. In fact, the Examiner does not even contend Albsmeier teaches or suggests such heat pipe but instead relies on the other cited references for such. As discussed above, each of the secondary references also fails to teach or suggest the claimed heat pipes as well as the claimed TE device that operates without an electrical and/or mechanical power device external to a high temperature heat pipe acting on a working fluid to transfer heat to and from the thermoelectric device. Accordingly, no reference cited teaches or suggests the claimed TE device and Albsmeier does not make up for the deficiencies of Migowski, Simeray or Stachurski.

Applicants believe the claims recited in the subject application are allowable over the art of record and notice to that effect is respectfully requested.

Respectfully submitted,

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